



Breezeshooters 2004: A Good Time Was Had By All!



Some of the gang enjoying the food and hospitality at the WASH Picnic at the Breezeshooter's Hamfest on June 6th!

More photos inside!

Photo courtesy of and ©2004 Ed Salva W3VFA

Field Day 2004

The second highlight of our "Club" year-Field Day- is upon us. The Field Day Committee including the food folks have been busy making plans to insure that we meet and perhaps exceed our goal for this year's gathering. That goal is of course to have FUN with radio while at the same time learning how we could operate under less than ideal conditions if circumstances dictated.

Of course we'll be celebrating FD at the Library Sportsmen's Club once again. The site is located on RT. 88 near Trax Farm and across the road from Mineral Beach just North of Finleyville. Naturally EVERYONE is not only welcome but encouraged to COME and OPERATE. We can all teach each other new things, renew friendships and make new

(Field Day Continued on page 5)



Inside this issue:

Amateur Radio Calendar	2
Picnic Photos	3
More Picnic Photos	4
Still More Picnic Photos	5
A Bicentennial Field Day	6
ARRL chastises FCC on BPL	6
WASH Membership Application	7
Hamfest Announcements	7

Next Meeting: July 8th, 2004

The next monthly meeting of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** will be Thursday, July 8th, at the **Peters Township Library**, 616 East McMurray Road, McMurray, starting at 7:00 PM.

Talk-in on the 146.955(-) N3RNX/R and 443.650(+) N3BV/R Repeaters (131.8 PL). All members, guests and interested parties invited!

WASH FM Net
9:00 PM ET
Sunday Nights
on the 146.955
and 443.650
Repeaters

Want to volunteer to be
a Net Control Station?
Please contact FM Net
Manager Kevin N3HKQ
for more information.

LOOKING AHEAD:

- Juniata Valley ARC Hamfest August 7th
- North Hills ARC Hamfest New Date August 8th
- Skyview RS Hamfest August 29th
- Butler Co ARA Hamfest & ARRL WPA Convention Sept. 12th
- Somerset Co ARC Hamfest Sept. 19th
- Pennsylvania QSO Party Oct. 9th & 10th
- Indiana Co ARC Hamfest Oct. 10th

July 2004						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 WACOM Meeting RA Erie Meeting Uniontown ARC Net	2 <i>Pittsburgh Regatta</i> Elco ARS Meeting	3 <i>Pittsburgh Regatta</i> RA Erie VE Test WPA Hilltoppers VE Test Somerset Co ARC Breakfast Nittany ARC Coffee Call North Hills ARC Elmer Net
<i>Fourth of July</i> Ellwood City ARA Meeting QCWA Pittsburgh Net North Hills ARC Teen Net Somerset Co ARC Net WASH FM Net	5 Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	6 Butler Co ARA Mtng Skyview RS Meeting WACOM Net North Hills ARC Net SATERN Net GPVHFS Swap n' Shop Net	7 Uniontown ARC Meeting Steel City ARC Social Night Allegheny Co SKYWARN Net Allegheny Co ARES Net Westmoreland Co ARES Net	8 WASH Meeting	9	10 <i>PVGP Beaver Run</i> <i>IARU HF Championship</i> NHARC/Breezeshooters VE Test Skyview RS VE Test Foothills ARC Breakfast 2 Rivers ARC Breakfast Quad Co ARC Breakfast
11 <i>PVGP Beaver Run</i> <i>IARU HF Championship</i> QCWA Pittsburgh Net North Hills ARC Teen Net Somerset Co ARC Net WASH FM Net	12 <i>Sum of the Month Lunch</i> ARL Lawrence Co Meeting Steel City ARC VE Test Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	13 Foothills ARC Meeting Coke Center ARC Meeting Ft Venango M&K Meeting Nittany ARC Meeting Punxsatawney Area ARC Mtng 2 Rivers ARC VE Test WACOM Net North Hills ARC Net	14 North Hills ARC Meeting Butler Co PSG Meeting Laurel Highlands VHFS Mtng Steel City ARC Social Night Allegheny Co ARES Net Westmoreland Co ARES Net	15 WASH VE Test	16 Quad Co ARC Pittsburgh Vintage Grand Prix Amateur Radio Volunteers Meeting 7:00 PM Schenley Park	17 <i>PVGP Schenley Park</i> Mercer Co ARC VE Test Nittany ARC Coffee Call North Hills ARC Elmer Net
18 <i>PVGP Schenley Park</i> Elk Co ARC Meeting WPRC Meeting (Altoona) QCWA Pittsburgh Net North Hills ARC Teen Net Somerset Co ARC Net WASH FM Net	19 Monessen ARC Meeting Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	20 Steel City ARC Meeting S H B P & M Meeting 2 Rivers ARC Meeting Tri-County CW ARC Meeting Juniata Valley ARC Meeting Pymatuning ARC Meeting Juniata Valley ARC Meeting WACOM Net	21 Huntington Co ARC Meeting Allegheny Co SKYWARN Net Allegheny Co ARES Net Westmoreland Co ARES Net	22 Uniontown ARC Net	23	24 Indiana Co ARC VE Test North Hills ARC Elmer Net
25 QCWA Pittsburgh Net North Hills ARC Teen Net Somerset Co ARC Net WASH FM Net	26 Breezeshooters Net 2 Rivers ARC Net Triple 'A' ARC Net Beaver Co Public Service Net	27 Mercer Co ARA Meeting WACOM Net North Hills ARC Net SATERN Net GPVHFS Swap n' Shop Net	28 Ft. Armstrong WA Meeting Steel City ARC Social Night Allegheny Co ARES Net Westmoreland Co ARES Net	29 WACOM Board of Directors Meeting Uniontown ARC Net	30	31 WASH Breakfast Nittany ARC Coffee Call North Hills ARC Elmer Net

WASH 2004 OFFICERS

EXECUTIVE COMMITTEE:

President William R. Hill W3WH
VP / Secretary Frank Bobro KB3FZU
VP / Treasurer Mark Stabryla N3RDV

AND WE COULDN'T DO IT WITHOUT:

N3SH / WA3SH Trustee Steve Lane W3SRL
NP2SH Trustee Paul Jordan NP2JF
N3SH / WA3SH QSL Manager Paul Lusardi NØVLR
NP2SH QSL Manager Ed Oelschlager N3ZNI
VE Team Liaison Jacques Gosselin N3ZEL
Webmaster Bob Sanford AA3FI
Quartermaster Harold Rosenberger KB3CPI
WASH FM Net Manager Kevin Smith N3HKQ
WASHFest 2004 Committee Steve Lane W3SRL, Chairman
Carol Danko KB3GMN
Bill Hill W3WH
Kevin Smith N3HKQ
Activities & Operating Events Larry Comden K3VX
Ted Huf W4ZE
Ways & Means Carol Danko KB3GMN
Media Communications Kevin DeRose N3KFD
Allegheny Co ARES Representative Ben Williams KB3ERQ

CLUB-AFFILIATED REPEATERS & BEACONS:

Mt. Lebanon	N3RNX/R	146.955 MHz (-)	PL 131.8
Mt. Lebanon	W3SRL/R	442.550 MHz (+)	PL 131.8
		Echo Link #26861 (courtesy W3SRL)	
Canonsburg	N3BV/R	443.650 MHz (+)	PL 131.8
St. Johns, VI	NP2SH/B	28.276 MHz	

N3SH/WA3SH WASHNet, the weekly on-air net of WASH, meets every Sunday Night, 9:00 PM ET, on the 146.955 & 443.650 repeaters. All radio amateurs, WASH members or not, are welcome to join in!

THE LEGAL STUFF

"The WASHRag™" (formerly "The Mariner™") is the Official Newsletter of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC. (WASH)**

Published Monthly with occasional Special Editions as warranted.

This issue is © Copyright 2003 by the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.**

Editor & Publisher: Ron Notarius WN3VAW

Permission is granted to other Amateur Radio publications to reprint articles in this issue, provided the original author and "The WASHRag™" are given credit. Comments, articles, and requests for copies of or information about "The WASHRag™" should be mailed to the editor:

Ron Notarius WN3VAW
946 Sleepy Hollow Road
Castle Shannon, PA 15234-2222

e-mail: wn3vaw@njdxa.org or wn3vaw@yahoo.com

"The WASHRag", "The Mariner", SHARCfest, South Hills Hamfest, WASHfest, WASHfest 2004, N3SH Net, WA3SH Net and WASHNet are trademarks of the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.**

The **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** was founded on August 23rd, 1993, as the original **SOUTH HILLS AMATEUR RADIO CLUB**, and operated under that name through 1998. WASH was also known briefly in late 1998 as the **N3SH AMATEUR RADIO CLUB**. It is not in any way affiliated with the "South Hills Amateur Radio Club, Inc." and is not responsible for that group, it's members, or it's actions in any way, shape, or form.

As always, special thanks to the owners of both the N3RNX/R Repeater System and the N3BV/R Repeater System for permitting the **WIRELESS ASSOCIATION OF SOUTH HILLS, INC.** and it's members to use their repeaters for club purposes. Special thanks also to our webmaster, Bob Sanford AA3FI, and to Shawn Djernes NØPEU for providing space on-line for back issues of "The WASHRag™" which can be found at www.washarc.org or www.djernes.org/washrag

Next WASH VE Test July 15th!

The Next WASH VE exam sessions will be **Thursday, July 15th, 2004, 6:30 PM**, at the **Peters Township Library**, 616 East McMurray Road, McMurray, PA. Talk-in on the 146.955 MHz and 443.650 MHz repeaters. All examiners are ARRL VEC affiliated.

Walk-ins are always welcome, but if you plan on attending the test session, please contact VE Team Liason Jacqu  Gosselin N3ZEL:

Telephone (724) 746-9235 or E-Mail: n3zel@fyi.net

Please bring the following to your test session:

Picture ID or other suitable identification (2 forms of ID required)

Pen / Pencil / Calculator

Original FCC license plus a copy of license (if upgrading)

Original CSCE plus a copy of CSCE (if upgrading)

Check or Cash in the amount of **\$12.00** (payable to: ARRL VEC)

Thursday, October 21st, 2004

Future test dates: Thursday, January 13th, 2005

(2005 Dates) Thursday, April 21st, 2005

subject to change) Thursday, July 21st, 2005



Ah, Kevin, we know it's a battery pack holder, but doesn't it look like something out of a Seinfeld episode?



All Photos this page
are courtesy of &
 2004 Dan McCann
KB3HVN





All photos this page are courtesy of and
©2004 Ed Salva W3VFA



Monthly **WASH** Breakfast Saturday, June 26th & July 31st

Please join us for the next **WASH** Breakfast! We usually get together on the LAST Saturday of every month for a chance to informally sit down, shoot the breeze, compare notes, drink lots of coffee, and just have a good time together!

We alternate our breakfast locations every month to make it easier for club members to get to at least one of them:

Join us in June at the **Your Way Café**, Caste Village Shops, Baptist & Grove Roads, Whitehall, and in July at **The Starting Line Café** on Route 19 near Race Track Road, north of Washington. Start time is about 8 AM until whenever. Monitor 146.955 & 443.650 for talk-in or any last minute changes.

All are welcome, **WASH** members or not, amateurs or not! See you there!

Join WASH or Renew your Membership for 2004 Today! Membership Application on Page 11!



All photos this page courtesy of & ©2004 Ed Salva W3VFA
except for photo of KB3FZU
& KB3GMU courtesy of and
©2004 Dan McCann KB3HVN



(Field Day Continued from page 1)

ones using the tried and true "eyeball" QSO.

We'll have a total of FOUR HF STATIONS available. Aside from having fun our biggest goal is to have as many folks both licensed and unlicensed operate. We have given this goal lip service in the past but it WILL be a reality this year.

All this will begin right after Breakfast on Saturday and will end mid afternoon on Sunday without interruption.

Come and enjoy!

73, Bill Hill W3WH
President, Wireless Association of South Hills
N3SH / WA3SH / NP2SH/b



Back Issues of the *WASHRag* have a new home on the web:

www.djernes.org/washrag

Thanks ~~NO~~PEU for providing the new site!

Silent Keys



President Ronald Wilson Reagan, 93, 5 June 2004

Remembering Field Days Past: PSARC K3CR/3 Field Day 1976

Mike Willis WA3VJA

Reprinted from *The Unbiased Emitter*, Volume VI, No. 4, 15 September 1976

June 26 and 27, 1976. Two days that K3CR may long remember. 'Twas Field Day 1976, and the Penn State ARC was going to try something different.

You see, Bruce Long WA3PTU and Jim Breakall WA3FET had obtained permission from Dr. Ferraro and the Electrical Engineering Department to use the antenna site west of State College for Field Day. On this site was an antenna which had about 16 dB of gain straight up, resulting in omni-directional radiation for close range QSO's. This antenna resonated around 4.5 MHz, close to 80 meters. It consisted of nine telephone poles with wires strung between them, an area of land about 300 feet by 300 feet square.

With this antenna as a starting point, the gang from PSARC started setup operations. Dipoles weren't good enough for us, so we put up a two element wire Yagi on 80 meters (50 feet up), a full size Quad on 40 meters, and a 300 foot long wire up 90 feet for good measure. The Quad and Yagi were oriented to the West, with the long wire North-South. With this array, we had four antennas to work with.

The Collins S-Line was carefully carted out to the site, with suitable pomp and ceremony, for use as the SSB station, and the writer's HW-100 was hooked up for use as the CW station. Thus prepared as an entry in Class 2A, the generator was started, and the countdown began.

A basic question arose here. When does Field Day start? 1 PM or 2 PM? We tried to start at 1. However, after few stations were answering us, a quick rule check revealed we had jumped the gun by an hour. Was Murphy starting to show himself? (Wait & see!)

Finally things got going on time, and soon it was evident that K3CR/3 was going to be doing well in the Bicentennial Field Day. WA3's PTU, FET, RPQ and WUD were turning over 30 QSO's per hour (on SSB), as were WA3's VJA, JFW, and Dave Glenner on CW. The antennas were working!

Oh, but woe to the optimists. The generator didn't like it's ancient spark plug. But leave it to the gang from 'CR to come through in the clutch. A new spark plug, you say? No way. Suitable words and chants (being kept a secret for next year) were uttered to calm our ancient source of power. These unprintable chants were repeated at periodic intervals throughout The Day, and proved to be an ample cure.

Day turned into Night and back to Day with the contacts pouring in. We were nearing 1000 contacts and six sunburns simultaneously with nothing in our way. As the fateful minutes were passed, we broke 1000, sprinted for the finish on 15 Phone, and nailed down FD at 2 PM (the right time) on Sunday. We had beaten Murphy, if no one else!

We learned at the Breezeshooter's Hamfest that Geno Boyd WA3IOU had been successful in his zoning battle with Elizabeth Borough over his antenna towers (they were trying to classify all communications towers, including Amateur, as commercial structures, and zoned accordingly). We hope to have more details from Geno on this in an upcoming newsletter



FYI Networks, an Internet Service Provider in Pittsburgh and surrounding areas since 1995, is offering all members of **WASH** their Basic Internet account for only \$18 / month. This includes one e-mail box, 3 MB of disk space, web page hosting, Telnet/FTP access. Call FYI toll-free at 1-877-

FYI4NET, or e-mail them at sales@fyi.net, for more details or to sign up. You **must** mention that you are a member of the **WIRELESS ASSOCIATION OF SOUTH HILLS** to get the discount rate.

FYI Networks now also provides sDSL service in selected areas. **WASH** Members can get DSL for the discounted rate of only \$47.50/month. A pre-qualification must be done to see if your address is in the DSL coverage area.

Call John Vasicek at 412-488-7800 for more information about FYI sDSL services & benefits.

Many thanks to FYI Networks for making these special offers available to us for the past seven years!

FCC Turning Blind Eye in BPL Proceedings, ARRL Charges

ARRL Web Extra courtesy of the American Radio Relay League

Newington, CT, June 24th, 2004 — The ARRL says the FCC apparently has already made up its mind about broadband over power line (BPL) and "wants no bad news" about the technology. In reply comments filed June 22 on the FCC's Notice of Proposed Rule Making in ET Docket 03-47, the League called on the Commission to take "a fresh look" at BPL before enabling its deployment. Again asking the FCC to put the proceeding on hold for a year, the League recommended that the Commission in the meantime require BPL providers to conduct FCC-monitored interference testing with all stakeholders. The ARRL charged that while an overwhelming majority of comments oppose BPL due to interference concerns, the FCC continues to rely on what the League called "vacuous assurances that BPL would not cause harmful interference." Test data and a growing record of unresolved complaints indicate otherwise, the ARRL said.

"ARRL is of the view that this proceeding has been prejudged and will, in the end, be decided not on the technical issues that should control the outcome of this proceeding, but on the politics of the matter," the League commented. "Given the evidence on the Commission's table, it cannot now authorize BPL at the radiated emission levels proposed, and without substantial restrictions."

Among those restrictions, the League recommended keeping BPL altogether away from all Amateur Radio allocations, should the FCC decide to authorize BPL under its proposed rules. As an alternative, the FCC should guarantee that an interfering BPL system can be shut down immediately in the face of a valid complaint, "not after a BPL provider has taken months to discover that the interference cannot be resolved."

To date, the ARRL contended, the FCC has seemingly ignored the League's BPL technical studies as well as the National Telecommunications and Information Administration (NTIA) Phase 1 BPL study that clearly demonstrate BPL's interference potential. Five additional technical evaluations accompanied the ARRL's reply comments.

"The Commission is obligated by the Administrative Procedure Act to look for fire where it is shown a good deal of smoke," the League said. "Here there is far more than smoke in the record." Any decision in the BPL proceeding "must be supported by substantial evidence," the ARRL asserted.

To bolster its case, the ARRL pointed to the Boeing Company's comments. Boeing told the FCC that Commission-proposed interference mitigation techniques "are inadequate to protect safety of life aeronautical HF communications services." The aircraft manufacturer urged the FCC to "carefully investigate these issues" before adopting rules to authorize BPL networks in spectrum used by aeronautical HF radio services.

"To permit BPL on the current record is to risk the lives of passengers and crew aboard aircraft," the ARRL rejoined. "The Commission simply cannot jeopardize the lives of passengers and crew of aircraft solely to rush to judgment on an untested competitive broadband alternative which uniquely has an established interference potential."

The ARRL also cited the comments of the Missouri State Highway Patrol, which note a lack of comprehensive testing to validate FCC assertions of BPL's low interference risk. The law-enforcement agency called the FCC-suggested interference mitigation techniques "reactive, not proactive" and said interference to its low-band VHF systems could prevent communication during a crisis "where injury or death might be the result of a reduction in communications ability."

The League said the results of both its studies and the NTIA's "are entirely consistent." Referring to the NTIA Phase 1 analysis, the ARRL said it's "quite reasonable to assume that the interference potential of BPL systems to fixed HF Amateur Radio stations is on the order of 460 meters (approximately 1509 feet) from the nearest BPL device." No proposals address BPL interference mitigation for mobile stations, the ARRL noted.

While commenting extensively on — and in some instances agreeing with — the NTIA's late-filed comments, however, the League said they depict an agency that must "balance dual and, in this case, conflicting roles" as the White House telecommunications policy advocate. The NTIA's comments, the ARRL asserted, reflect the Administration's broad overall policy, not the interference potential of BPL.

The League questioned the NTIA's contention that BPL is a "win-win" situation and that its potential public benefits and alleged capability to minimize power line noise argue for "accepting a degree of interference risk."



WIRELESS ASSOCIATION OF SOUTH HILLS, INC.

Membership Application/Renewal for 2004



I would like to join WASH!. I am interested in the following type of membership: ☐ New Membership ☐ Membership Renewal

(check quarter _____ →)

(check one !)

☐ 1st Qtr
Jan-Mar

☐ 2nd Qtr
Apr-Jun

☐ 3rd Qtr
Jul-Sept

☐ 4th Qtr
Oct-Dec

☐ (F1) Full Membership:

\$20.00

\$15.00

\$10.00

\$5.00

☐ (F2) Full Membership < 18 or > 65 yrs of age:

\$10.00

\$7.50

\$5.00

\$2.50

☐ (A1) Associate Membership:

\$10.00

\$7.50

\$5.00

\$2.50

☐ (FM1) Family Membership (F1 or F2 or A1 dues x 20% x No. of household family members): \$ _____

Name(s): _____

Name: _____

Call Sign: _____

Address: _____

License Class: _____

City, State: _____

Expires On: _____

Home Phone: _____

Work Phone: _____

Email Address: _____

Birthday: _____

New Members Only:

☐ I do NOT want to be added to the Club E-Mail Reflector

☐ I do NOT want to be added to the Electronic Newsletter Mailing List

[If you have an Email address, you Will be added to both lists UNLESS you choose to Opt-Out]

ARRL Member? ☐ Yes ☐ No Family ARRL Member? ☐ Yes ☐ No

Date: _____

Signature: _____

Amount Enclosed: \$ _____

Please make your check or money order payable to the club treasurer, Mark Stabryla.
The Wireless Association of South Hills, Inc. reserves the right to accept or reject new memberships or renewals.
Please return completed membership form along with check/money order to the club treasurer or mail to:

Wireless Association of South Hills, Inc.
C/O Mark Stabryla N3RDV, VP/Treasurer
1120 McKnight Drive
Bethel Park, PA 15102-2456

Juniata Valley ARC Hamfest

Saturday, August 7th 8:00 AM to ????

Decatur Township Fire Company Grounds,

4277 US Route 522 North, Alfarata PA (8 Miles East of Lewistown, PA)

Talk-in on 146.910 MHz

Designated a "Meet & Greet" Hamfest for the 2004 Pennsylvania QSO Party!

For more information contact Cliff Bell WB3IVX (717) 248-2616

Or E-Mail wb3ivx@localnet.com or k3qlz@localnet.com

19th Annual North Hills ARC Hamfest

New Date!

Sunday, August 8th 8:00 AM to 2:00 PM

Northland Library, Cumberland Road, Wexford

Talk-in on W3EXW/3 147.09 MHz

For more information, e-mail aa3ta@verizon.net

(FCC Continued from page 6)

"Not so," the ARRL countered. "Licensed radio services operating in the sensitive HF environment should not have foisted upon them a substantial interference risk from unlicensed devices or systems whatsoever." The NTIA suggested that BPL deployment would lead to improvements in the associated low and medium-voltage power distribution systems, thus reducing power line noise. "Replacing one interference source with another in the same bands is not in any way beneficial," the ARRL responded.

The ARRL also took the FCC to task for neglecting to acknowledge or respond to a mounting number of interference complaints, most from amateur licensees living in BPL field trials areas. "The Commission has, as of this writing, adjudicated not a single one and has ignored repeated requests from licensed radio amateurs for even a confirmation of receipt of their complaints!" the ARRL emphasized. BPL noise in some instances has precluded amateur operation, the League said. Earlier this month, the ARRL filed a well-documented and supported complaint on behalf of Jim Spencer, WØSR, in Cedar Rapids, Iowa. The League suggested such BPL complaints deserved careful analysis, but not the Commission's cold shoulder. "What ARRL is unwilling to tolerate is the continuation of the Commission's sweeping of these complaints 'under the rug,' which is exactly what has happened in this proceeding," the League commented. The Commission must put its zeal over BPL aside and "take a fair look at them before any action is taken in this proceeding." The League also questioned why BPL interference complaints to the FCC were ending up in the Commission's Office of Engineering and Technology instead of the Enforcement Bureau.

The ARRL didn't spare BPL operators. "The level of accountability demonstrated to date by operators of BPL test sites is dismal and unacceptable," the League said. It expressed little confidence in utilities that have failed to resolve power line noise complaints from amateurs to do any better with BPL complaints.

Based on the current record, the ARRL argued, proposed radiated emission levels for BPL are too high. "The Commission has not proposed any rules which would predictably and reliably protect HF and low-band VHF radio systems from interference," ARRL concluded. "The interference resolution mechanisms that are adopted should be real, rather than merely illusory."



DX, Alphabetically

KR3DX met up with KQ3DX at the [WASH](#) Picnic at the 2004 Breezeshooter's Hamfest. Now, where the rest of the alphabet was, we're still working on!

Many more Picnic photos inside!

Photo courtesy of and ©Copyright 2004 Jacqué Gosselin N3ZEL

The *WASH*Rag

Wireless Association of South Hills, Inc.

Ron Notarius WN3VAW, Editor

946 Sleepy Hollow Road

Castle Shannon, PA 15234-2222



N3SH / WA3SH

NP2SH/B

www.washarc.org